

The Power of Social Support: Strengthening Entrepreneurial Self-Efficacy in Future Health Professionals

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Abstract

Background

Entrepreneurial self-efficacy (ESE) has a significant impact on innovation and engagement in entrepreneurship among health professionals but studies that explore its relationship with perceived social support among medical and allied health students are rare. The present study was carried out to examine the relationship between perceived social support and entrepreneurial self-efficacy among the medical and allied health students.

Methods

The present cross-sectional analytical study was performed on 488 medical and allied health students of a medical university in Iran. Data were completed by using the validated Persian versions of Entrepreneurial Self-Efficacy Scale and Multidimensional Scale of Perceived Social Support. Participants were selected through proportional quota sampling and then through convenience sampling. We investigated the association between perceived social support and entrepreneurial self-efficacy using correlation analysis and pooled multivariable linear regression with multiple imputation, controlling for demographic variables.

Results

The results showed that perceived social support was positively associated with entrepreneurial self-efficacy (ESE). Adjusted multivariable analysis revealed that male sex ($B = 5.68$, 95% CI: 3.67–7.70) and peer support ($B = 0.082$, 95% CI: 0.017–0.147) were independently associated with higher ESE. Family support and other important ones' support were not significantly associated with ESE after adjustment. The highest mean score was in planning among the ESE dimensions, and finance capabilities had the lowest mean score.

Conclusions

Peer support is the most important source of perceived social support for ESE in medical and allied health students, after controlling for other confounders. Peer interaction and collaborative learning as educational practices may have a promising role in improving entrepreneurial confidence in health professions education. This study contributes to the evidence that peer-based support may be more impactful on ESE than support from family or significant others in this population. Validation of these associations requires longitudinal and intervention studies.

Introduction

Rapid technological advancement, demographic changes, increasing healthcare costs and heightened demand for accessible, high quality and sustainable services are powering significant change within global healthcare systems. The skills that are required of health workers have expanded to include innovation, leadership, spotting opportunities and entrepreneurial flair, in addition to their traditional clinical expertise. Therefore, entrepreneurship has become an important component of health professions education, equipping the future healthcare workforce with the abilities needed to create innovative solutions that enhance healthcare delivery and system effectiveness.

Entrepreneurial self-efficacy (ESE) refers to an individual's confidence in his or her ability to successfully perform entrepreneurial roles and tasks, and has been found to be an important cognitive factor influencing entrepreneurial intention, opportunity recognition and entrepreneurial behavior. High entrepreneurial self-efficacy is related to a higher probability of identifying entrepreneurship opportunities, committing resources to them, tolerating ambiguity and persevering through adversity. As entrepreneurial competencies are thought to be learned rather than innate, identifying the characteristics that enhance Entrepreneurial Self-Efficacy (ESE) has become a key objective for educators and policymakers who aim to develop entrepreneurial capacity among healthcare graduates.

According to Bandura's Social Cognitive Theory, self-efficacy develops from mastery experiences, vicarious learning, verbal persuasion, and interpretation of emotional and physiological states. Supportive social interactions in educational environments may improve these mechanisms by increasing confidence, reducing perceived barriers, and encouraging participation in entrepreneurial activities. Besides this standpoint, Social Capital Theory argues that individuals within a conducive social network receive informational, emotional, and instrumental resources that can contribute to learning, innovation, and entrepreneurial development. These theoretical perspectives collectively suggest that perceived social support may be an important contextual antecedent of entrepreneurial self-efficacy.

Empirical research has increasingly demonstrated that perceived social support is positively related to entrepreneurial outcomes such as entrepreneurial intention, entrepreneurial competence and self-efficacy. However, the existing literature suffers from multiple important limitations. While global interest in healthcare innovation and entrepreneurship has been growing, the majority of previous studies have focused on business, engineering or management students, and less on healthcare students in the academic literature. Secondly, previous studies concentrated on entrepreneurial intention instead of entrepreneurial self-efficacy, which is considered as a more proximal cognitive antecedent of entrepreneurial behavior. Third, few studies have examined the independent effects of family support, peer support and support from significant others simultaneously using multivariable analytical methods that are able to control for confounding variables.

There is a lack of evidence, particularly from low- and middle-income countries and a paucity of studies of healthcare education in the Middle East. This disparity is particularly relevant in Iran where healthcare entrepreneurship has been introduced as an educational focus, but the impact of different types of social support on entrepreneurial beliefs may be mediated by strong family connections, collectivist social

norms and cultural expectations. Hence, findings generated in Western educational institutions should not be considered as directly transferable to Iranian health professions education.

This study fills a gap in the literature by examining the entrepreneurial self-efficacy (ESE) of healthcare students, as opposed to business, engineering, and other non-health students, which have been less researched. This study differs from previous research, which usually considers perceived social support as a single construct, by differentiating between support from family, peers and significant others and examining their different associations with ESE in an adjusted model. It gives evidence from a collectivist context in which social interactions can influence entrepreneurial cognitions(8, 15). It applies the frameworks of Social Cognitive Theory and Social Capital Theory within the framework of Iranian medical education.

Knowing the relative impact of various sources of support could help universities formulate more effective educational and mentoring strategies to enhance entrepreneurial competencies among prospective healthcare professionals. The aim of the present study was to assess the relationship between perceived social support and emotional self-efficacy among medical and allied health students in a university of medical sciences in Iran. We explicitly tested the independent effects of family, peer, and romantic partner support controlling for demographic variables. Based on Social Cognitive Theory and Social Capital Theory, we hypothesized that higher perceived social support, especially from peers and family, would be associated with higher ESE.

Methods

2.1. Study design and settings

This analytical cross-sectional study was carried out from January to June 2025 at Jahrom University of Medical sciences, Iran. The aim of the research was to examine the relationship between perceived social support and entrepreneurial self-efficacy of students in health-related fields of study. Demographic variables were treated as potential covariates in the statistical analyses, and perceived social support was the primary independent variable and entrepreneurial self-efficacy was the dependent variable. Since the exposure and outcome variables were measured at the same time, the results should be viewed as associations and not causal associations.

This analytical cross-sectional study was carried out from January to June 2025 at Jahrom University of Medical Sciences, Iran. The aim of the research was to examine the relationship between perceived social support and entrepreneurial self-efficacy of students in health-related fields of study. The main independent variable was perceived social support, the dependent variable was entrepreneurial self-efficacy and demographic characteristics were included as potential covariates in the statistical analyses. The exposure and outcome variables were assessed at the same time and the findings should be interpreted as associations and not causal correlations.

2.2. Participants and Sampling

The study population consisted of all undergraduate, postgraduate, and general medical students enrolled in Jahrom University of Medical Sciences during the study period. Students who volunteered to participate had to be enrolled at the university and have completed at least one semester to be eligible to take part in the study. Those students who declined to give written informed consent or who returned questionnaires with large amounts of missing data were excluded from the final analysis.

The required sample size was determined by the single population mean formula using parameters from Wang et al. on perceived social support. The minimum sample size was calculated to be 400 participants [16] with a mean score of 3.658, a standard deviation of 0.60, a precision of 0.06 and a two-sided significance threshold of 0.05. The predicted sample size was inflated by around 20% to cover possible non-response and incomplete questionnaires. The target sample was 480 students.

Based on the official university enrollment data, a proportional quota sampling technique was used to ensure adequate representation in gender, academic discipline and educational level. Convenience sampling was used to recruit participants within each quota until the required sample size for each subgroup was reached. Altogether, 488 students completed the survey and were included in the final analyses.

2.3. Data Collection Procedure

Data were collected using anonymous, self-administered paper questionnaires. Before the questionnaire was distributed, standardized verbal instructions were given by the principal investigator, outlining the objectives of the study, the voluntary nature of participation, the anonymous format of the questionnaires, the confidentiality of the data collected, and the procedures for completing the questionnaire. Participants were informed that they could decline to participate or withdraw from the study at any time without any academic consequences.

Written informed consent was obtained from all participants before questionnaire delivery. The questionnaires were then administered to the students, who completed them individually, during scheduled academic times, without interacting with other students. No personal identifying information was collected. Once completed, the surveys were distributed directly to the researcher and then immediately collected to protect the integrity of the data as well as the anonymity and confidentiality of the participants. The processes were designed to minimize information bias and lessen the potential effects of social desirability bias.

2.4. Study Measures

All study measures were assessed using standard and validated questionnaires. Permission to use the instruments was obtained where required, and the validated Persian versions of both questionnaires were administered (17, 18, 19).

2.4.1. Demographic Characteristics

Participants completed a demographic questionnaire to collect data on age, gender, area of study, and level of education. These factors were included to describe the study population and were considered as potential confounders for multivariable analysis.

2.4.2 Entrepreneurial Self-Efficacy

Entrepreneurial self-efficacy was measured using the Entrepreneurial Self-Efficacy Scale (McGee et al., 2009). The instrument consists of 22 items in 5 dimensions: searching, planning, marshaling, implementation with personnel, and implementation with financial resources. The items are rated on a 5-point Likert scale, with 1 as strongly disagree and 5 as strongly agree with a cumulative score ranging from 22 to 110. Higher scores indicate higher entrepreneurial self-efficacy (17). In the present study, the validated Persian version of the scale was used. Before the main survey, the instrument was subjected to a panel of experts in the areas of entrepreneurship, health education and behavioral sciences for the assessment of face and content validity to determine its suitability for the target audience. Minor linguistic changes were made based on expert feedback and pilot testing, without changing the conceptual meaning of the items. This instrument demonstrated satisfactory internal consistency for the present sample, as indicated by a Cronbach's alpha coefficient of 0.87.

2.4.3. Perceived Social Support

Social support was assessed by the Multidimensional Scale of Perceived Social Support (MSPSS) developed by Zimet et al. The MSPSS is a 12-item measure with three subscales measuring support from family, friends, and significant others. Each item was rated on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The total score ranged from 12 to 84 and the subscale scores ranged from 4 to 28. Higher scores mean greater perception of social support (18). The present study utilized the validated Persian version of the MSPSS. The face and content validity of the MSPSS was assessed by the expert panel similar to the entrepreneurial self-efficacy scale to ensure that it was clear, relevant, and culturally appropriate for the study population. The pilot phase provided feedback that was used to make minor linguistic adjustments where needed (19). The present sample showed excellent internal consistency for this instrument, with a Cronbach's alpha coefficient of 0.92.

2.5. Quality Assurance

Several methodological techniques were used to improve data quality and reduce potential sources of bias. To ensure the reliability and validity of measurement, standardized and previously validated Persian versions of all study instruments were used. The questionnaires were reviewed by experts in entrepreneurship, health education, and behavioral sciences before data collection to ensure their contextual appropriateness for the target population. A pilot study was conducted on a small number of students to evaluate the clarity, comprehensibility and time of completion of the questionnaires. Linguistic modifications were made based on participant feedback, but the conceptual integrity of the instruments was maintained.

To decrease information and social desirability biases, anonymous questions were posed with no personally identifiable information, all participants received standardized instructions, and no faculty

members were present during questionnaire administration. Moreover, both the independent and dependent variables were measured using self-report questionnaires, and thus, the possibility of common method bias was statistically evaluated using Harman's single factor test. The results showed that no single component explained the majority of the total variance, suggesting that common method bias was unlikely to significantly impact the study findings.

2.6. Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 25 (IBM Corp., Armonk, NY, United States). Descriptive statistics was used to explain the demographic characteristics of the individuals and the variables of the research. Continuous variables were expressed as mean $\pm$ standard deviation (SD) and categorical variables were expressed as frequencies and percentages.

The Kolmogorov–Smirnov test was used to evaluate the distribution of continuous variables and histograms and normal probability (Q–Q) plots were used to visually inspect the data. Pearson's correlation coefficient was used to analyze bivariate relationships between entrepreneurial self-efficacy and dimensions of perceived social support.

Missing data were evaluated before model estimation. Little's Missing Completely at Random (MCAR) test revealed that the missing data were not missing completely at random. Therefore, missing values were imputed by Multiple Imputation (MI) using Fully Conditional Specification (FCS) methodology (20, 21). We generated twenty imputed datasets using the Fully Conditional Specification (FCS) approach with Predictive Mean Matching (PMM) to retain the observed distributions of continuous variables and minimize bias associated with missing data. Aggregated regression coefficients and standard errors across the imputed datasets were calculated according to Rubin's guidelines and these aggregated estimates were the main outcomes of the multivariable analyses .

A multivariable linear regression analysis was performed using the Enter (forced-entry) method to examine the independent association between perceived social support and entrepreneurial self-efficacy after adjusting for potential confounders including age, sex, marital status, educational attainment, field of study, residence and familial history of self-employment. Before estimating the model, tests were conducted for model assumptions such as linearity, homoscedasticity, normality of residuals, independence of errors and multicollinearity. Multicollinearity was checked using variance inflation factor (VIF) and tolerance statistics; VIF values less than 5 and tolerance values greater than 0.20 were considered acceptable.

As a sensitivity analysis, a complete-case analysis was conducted to assess the robustness of the results. We compared regression coefficients, confidence intervals, and statistical significance of the complete case estimates with pooled estimates from the multiply imputed data sets. Statistical significance was considered at two-sided P value < 0.05.

2.7. Ethical Considerations

The study protocol was approved by the Research Ethics Committee of Jahrom University of Medical Sciences (Approval No. IR.JUMS.REC.1402.079). All participants were fully informed of the aims and procedures of the study and provided written informed consent prior to enrollment. Students were told they could decline to participate or withdraw from the study at any time without academic repercussions, and participation was voluntary. All questionnaires were anonymous and the confidentiality of the participants' information was strictly maintained during data collection, analysis and reporting. The study was performed in accordance with the ethical standards of the Declaration of Helsinki.

Results

3.1.Participant Characteristics

The study comprised a total of 488 students. The sample consisted of an approximately equal distribution of female and male students, with a mean age of 22.2 ± 2.9 years. Undergraduate and general physician students constituted the predominant group of participants, with medicine being the most prevalent field of study. Comprehensive participant characteristics are specified in Table 1.

Table 1
Demographic Characteristics of Participants in the Study on
Entrepreneurial Self-Efficacy Among Medical University Students

Variables		N(%)	Missing Data
		488	N(%)
sex	Female	251(51.6)	2(0.4)
	Male	235 (48.4)	
Grade	General physician	208 (44.3)	19(3.9)
	Special Physician	5 (1.1)	
	Bachelor	238 (50.7)	
	Master	18 (3.8)	
Field	physician	208 (42.9)	3(0.6)
	Health expert	50 (10.3)	
	Operating room expert	51 (10.5)	
	Nurse	86 (17.7)	
	Parasitology	7 (1.4)	
	Anesthesia	30(6.2)	
	Laboratory Science	53 (10.9)	
Age	22.2 ± 2.9		3(0.6)

3.2.Missing Data

Demographic variables had low levels of missingness (< 5%), while entrepreneurial self-efficacy and perceived social support had somewhat higher levels of missingness (11.3% and 8.8% respectively; Tables 1 & 2). Since Little's MCAR test is important, it was assumed that the missing data were not completely random. Therefore, multiple imputation using Fully Conditional Specification was used, and 20 imputed datasets were generated and subsequently pooled according to Rubin rules. Sensitivity analysis was conducted using a complete case analysis.

3.3. Descriptive Statistics

The mean score of entrepreneurial self-efficacy was 69.4 ± 10.5 and the mean score of perceived social support was 72.8 ± 15.9 . The highest mean score among entrepreneurial self-efficacy domains was for planning (70.7 ± 14.1) and the lowest was for implementing with financial resources (65.7 ± 16.1). Family support had the highest mean score (76.1 ± 17.5) in terms of perceived social support, while support from friends recorded the lowest mean score (66.6 ± 20.2). Table 2 presents the descriptive statistics in detail.

Table 2
Mean and Standard Deviation of Entrepreneurial Self-Efficacy and Social Support Scores and Their Dimensions Among Medical Students

variables	Mean (SD)	Missing Data N(%)
Total score of Entrepreneurial self-efficacy	69.4(10.5)	55(11.3)
Searching	70.2(14.4)	6(1.2)
Planning	70.7(14.1)	10(2)
Marshaling	69.2 (14.7)	22(4.5)
Implementing with people	69.1(14.1)	23(4.7)
Implementing with financial resources	65.7(16.1)	3(6)
Social support	72.8(15.9)	43(8.8)
Family support	76.1(17.5)	26(5.3)
Friends support	66.6(20.2)	19(3.9)
significant support	74.7(19)	4(0.8)

3.4. Correlation Analysis

Entrepreneurial self-efficacy was found to be positively correlated with perceived social support, and the correlation was small ($r = 0.21$, $P < 0.01$). We found weak positive associations between entrepreneurial self-efficacy and family support ($r = 0.19$), friends' support ($r = 0.18$), and support from significant ones ($r = 0.14$). Age was weakly negatively correlated with planning ($r = -0.09$, $P < 0.05$) and risk-taking ($r = -0.15$, $P < 0.01$). The correlation coefficients are presented in Table 3.

Table 3
Pearson Correlation Coefficients Between Entrepreneurial Self-Efficacy, Its Dimensions, and Social Support Among Medical Students

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Entrepreneurial self-efficacy	—	.65**	.73**	.75**	.77**	.68**	.21**	.19**	.18**	.14**	-.09
2. Creativity		—	.41**	.35**	.27**	.34**	.27**	.21**	.22**	.26**	-.03
3. Planning			—	.55**	.45**	.41**	.17**	.18**	.13**	.11*	-.09*
4. Leadership				—	.48**	.33**	.20**	.17**	.20**	.17**	-.06
5. Risk-taking					—	.45**	.02	.05	.03	-.04	-.15**
6. Persistence						—	.11*	.14**	.07	.03	-.08
7. Social support							—	.87**	.83**	.85**	.08
8. Family support								—	.51**	.67**	.02
9. Friends support									—	.59**	.06
10. Others' support										—	.11*
11. Age											—
*p value < 0.05											
** p value < 0.01											

3.5. Multivariable Linear Regression Analysis

In the revised model, only gender and perceived peer support were found to be independently associated with entrepreneurial self-efficacy. Male students had significantly higher entrepreneurial self-efficacy than female students ($B = 5.68$, 95% CI: 3.67–7.70, $P < 0.001$). More peer support was associated with better entrepreneurial self-efficacy ($B = 0.082$, 95% CI: 0.017–0.147, $P = 0.014$). The model explained 13.7% of the variance of entrepreneurial self-efficacy (adjusted $R^2 = 0.121$) and did not show signs of multicollinearity (VIF value range: 1.08–2.11). The detailed regression results are shown in Table 4.

3.6. Sensitivity Analysis

The complete-case analysis produced results similar to those of the imputed model. The only significant predictors of entrepreneurial self-efficacy were male gender ($B = 6.14$, 95% CI: 4.09–8.20, $P < 0.001$) and

support from friends ($B = 0.078$, 95% CI: 0.018–0.139, $P = 0.012$), suggesting that the main findings were robust to the methodology used to address missing data (Table 4).

Table 4

Primary multivariable linear regression analysis of factors associated with entrepreneurial self-efficacy based on pooled estimates from 20 multiply imputed datasets ($n = 488$), with complete-case analysis ($n = 379$) presented as a sensitivity analysis

Predictor	Primary analysis (Multiple Imputation, $n = 488$)		P- value	Sensitivity analysis (Complete-case, $n = 379$)		P- value	VIF	Tolerance
	Adjusted B	95% CI		Adjusted B	95% CI			
Age	-0.195	-0.590 to 0.200	0.331	-0.117	-0.496 to 0.263	0.546	1.08	0.929
Sex)male to female)	5.684	3.669 to 7.698	< 0.001	6.143	4.085 to 8.200	< 0.001	1.11	0.905
Field of study	0.001	-0.488 to 0.490	0.998	0.037	-0.461 to 0.534	0.885	2.00	0.499
Academic grade	-0.154	-1.508 to 1.201	0.824	0.029	-1.350 to 1.408	0.967	1.99	0.501
Family support	0.061	-0.022 to 0.145	0.148	0.054	-0.023 to 0.132	0.168	1.85	0.541
Friends' support	0.082	0.017 to 0.147	0.014	0.078	0.018 to 0.139	0.012	1.61	0.622
Support from significant others	0.031	-0.042 to 0.105	0.400	0.045	-0.029 to 0.120	0.231	2.11	0.474

Model fit

$R^2 = 0.137$; Adjusted $R^2 = 0.121$; $F = 8.40$; $P < 0.001$.

Abbreviations: CI, confidence interval. VIF, variance inflation factor

Notes: Primary regression analyses were performed using pooled parameter estimates from 20 multiply imputed datasets generated using the Fully Conditional Specification (FCS) method and combined according to Rubin's rules. Complete-case analysis was conducted as a sensitivity analysis ($n = 379$).

Adjusted regression coefficients represent estimates after adjustment for age, sex, field of study, academic grade, family support, friends' support, and support from significant others.

Discussion

The current study shows that perceived social support is related to the entrepreneurial self-efficacy (ESE) of medical and allied health students, but not all sources of support are equally impactful. In the multivariable models, after adjustment for demographic variables and interrelationships among the different sources of support, only peer support was significantly associated with high ESE while family support and support from significant other were not significant anymore. The results indicate that support from students' immediate educational and social environment may be more important in fostering entrepreneurial confidence than support from broader personal relationships. The higher entrepreneurial self-efficacy (ESE) in male students, coupled with the limited explanatory power of the regression model, points to entrepreneurial self-efficacy as a multifaceted construct influenced by a variety of personal, educational and contextual factors, rather than simply perceived social support.

Participants reported greater self-efficacy for entrepreneurial tasks related to planning than financial skills. Thus, health care education may be more effective in developing problem solving and project planning skills than those required for making business and financial decisions. Similar trends were observed in health care students, but business and engineering students generally reported higher levels of confidence in financial and venture management skills because entrepreneurship is more explicitly integrated within these disciplines. These findings provide evidence for the assertion that entrepreneurial self-efficacy is developed through domain-specific learning experiences and is not a fixed personal attribute. Social Cognitive Theory suggests that limited opportunities for mastery experiences in entrepreneurship and financial decision-making can be a barrier to the development of financial self-efficacy among healthcare students. This discovery requires the inclusion of entrepreneurship education, innovation training and experiential learning in health profession courses to foster entrepreneurial competencies.

The primary finding from this study was that after controlling for demographic variables and other kinds of perceived social support, only peer support was independently associated with entrepreneurial self-efficacy. In analyses without adjustment, family support and support from significant others were positively associated with entrepreneurial self-efficacy, but these relationships were no longer significant after multivariable adjustment, indicating that their perceived effects were largely explained by shared variance with other social resources. Previous studies reported inconsistent findings about the importance of different support sources. Some researchers highlighted the role of family and others emphasized the role of peers in university education. The findings here point to peers being the most significant social context for building entrepreneurial self-confidence in health care education. Frequent collaboration, clinical teaming, peer assessment, and observational learning provide abundant opportunities for social persuasion and mastery experiences, which improves entrepreneurial self-efficacy. These findings also contribute to Social Capital Theory by demonstrating that peer networks are

a potential major source of informational, emotional and motivational resources for entrepreneurial development. The results suggest that the effect of perceived social support is source-specific and not uniform across different social interactions (3, 7, 8, 11, 14, 25-27).

The male students had significantly more entrepreneurial self-efficacy than the female students which was consistent with the findings of previous entrepreneurship studies. But it is more convincing to explain this inequality through unequal access to entrepreneurial role models, differences in entrepreneurial exposure and sociocultural expectations influencing efficacy beliefs, rather than to basic inequalities in competence. According to Social Cognitive Theory, these differences may be explained by differences in mastery experience, vicarious learning opportunities and social reinforcement. Differences in entrepreneurial confidence among healthcare students can be narrowed through focused mentorship, inclusive entrepreneurship initiatives, and gender-responsive instructional practices since entrepreneurial self-efficacy is malleable with educational interventions (14, 25, 26, 28-30).

The regression model explained a small portion of the variance in entrepreneurial self-efficacy. Thus, entrepreneurial confidence is a complex construct that is affected by several psychological, educational, and contextual factors other than perceived social support. Previous literature on entrepreneurial self-efficacy has shown similar explanatory power, indicating that social support is only one part of a more comprehensive theoretical framework. Additional longitudinal and theory-driven research is required to investigate factors such as entrepreneurship education, psychological capital, innovation orientation, institutional climate, entrepreneurial intention, and previous entrepreneurial experience in an effort to better understand the mechanisms for developing entrepreneurial self-efficacy among healthcare students.

The results suggest that entrepreneurial self-efficacy is developed through social learning processes in educational environments and that the role of peer relationships is particularly important. The different effects of different sources of support contribute to the theoretical literature by showing that social ties are not equally helpful in increasing entrepreneurial confidence among healthcare students. These findings support the use of peer mentoring, cross-disciplinary innovation initiatives, collaborative entrepreneurial programs, and experiential learning opportunities that encourage continued engagement, feedback, and skill development. These initiatives can improve the entrepreneurial self-efficacy of future health professionals, providing them with sufficient skills to engage in innovation and entrepreneurial endeavors in more complex health systems (3, 7, 11, 14, 25, 26, 29, 31).

Strengths and Limitations

There are many important strengths of this study. This study is among the first studies to investigate the separate effects of family, peer and significant others' support on entrepreneurial self-efficacy among the healthcare students within a unified multivariable framework. By integrating Social Cognitive Theory and Social Capital Theory, this study contributes to the understanding of how different types of perceived social support may differentially influence entrepreneurial confidence in health professions education.

Use of validated Persian instruments, multiple imputation by Predictive Mean Matching for missing data, and complete-case sensitivity analyses made the results more robust and reliable.

However, many other constraints are also to be recognised. The cross-sectional approach does not allow for causal inference and does not enable the assessment of temporal correlations between perceived social support and entrepreneurial self-efficacy. This research was limited to only one Iranian institution and employed a quota based convenience sampling method, which restricts the generalization of the findings to other educational and cultural settings. Third, all variables were assessed by self-report measures, so that the results were vulnerable to reporting bias and common method variance. In addition, although there were significant independent relationships in the regression model, the limited explanatory power suggests that relevant predictors of entrepreneurial self-efficacy were omitted. Residual confounding from unmeasured variables, such as entrepreneurship education, previous entrepreneurial experience, psychological capital, entrepreneurial intention, and institutional entrepreneurial climate cannot be overlooked.

Practical and Policy Implications

The present findings have important implications for entrepreneurial education in health professional programs. Peer support has been identified as the sole independent social predictor of entrepreneurial self-efficacy . Educational interventions must thus transcend traditional classroom-based entrepreneurship courses and advance towards collaborative and experiential learning environments . Entrepreneurial confidence is enhanced by social learning, feedback, and mastery experiences provided by peer mentoring programs, interdisciplinary innovation teams, entrepreneurship clubs, clinical innovation projects, and student-led incubators.

These findings support the inclusion of entrepreneurship competencies in health professions curricula via institutional mechanisms that foster collaborative learning and innovation. Universities and educational authorities should integrate entrepreneurship in competency-based courses, improve organized mentoring programs, improve university-industry collaborations, and invest in innovation ecosystems that support multidisciplinary collaboration. These activities can increase the capacity of the health workforce to address complex health issues through innovation and entrepreneurship.

Future Research

Future studies should employ longitudinal and multicenter study designs to better understand the temporal and potentially causal relationships between perceived social support and entrepreneurial self-efficacy in different educational contexts. Further intervention studies are needed to determine the effectiveness of peer mentoring, entrepreneurship education, interdisciplinary innovation programs and experiential learning initiatives to enhance entrepreneurial self-efficacy among health care students.

Due to the limited explanatory power of the current model, future research should use broader conceptual models that include more psychological, educational, organizational, and contextual factors that influence entrepreneurial development. Some of the factors that may provide a more comprehensive insight into entrepreneurial self-efficacy are entrepreneurship education, psychological capital, entrepreneurial intention, opportunity recognition, innovation competency, institutional entrepreneurial climate and prior entrepreneurial experience. Sophisticated analytical approaches such as structural equation modeling, longitudinal mediation analysis, and multilevel modeling may illuminate the complex pathways through which social support impacts entrepreneurial development in health professions education.

Conclusion

This study showed that perceived social support was positively related to entrepreneurial self-efficacy among medical and allied health students, but only peer support was significantly associated with entrepreneurial self-efficacy when controlling for demographic and educational characteristics. The findings suggest that peer interaction is an important and potentially modifiable educational resource for enhancing entrepreneurial confidence in health professions education.

The results of this study provide evidence of a significant association and add to the literature on entrepreneurship and health professions education by showing that the impact of perceived social support is not uniform across social interactions but instead varies by source. The findings support the relevance of Social Cognitive Theory and Social Capital Theory for understanding entrepreneurial self-efficacy in healthcare education and provide an evidence base for the development of peer-centered educational programs that foster innovation and entrepreneurship among future healthcare workers. However, because of the cross-sectional design of the study, the results should be interpreted as associative, rather than causal. Longitudinal and intervention studies are needed to confirm these associations and identify effective approaches to improve entrepreneurial self-efficacy in health care education.

Declarations

Consent for publication : Not applicable.

Availability of data and materials: Data availability on request due to ethical restriction.

Competing interests: The authors declare that they have no competing interests.

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